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approached in different ways, but in the object as wholly known these parts fit and supplement one another. These are considerations to which I hope shortly to return.

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WHAT IS PERCEPTION?[1]

IN criticizing my discussion of perception, two of my reviewers have called attention to the fact that I have omitted anything but the most casual mention of the dependence of perception on past experience. This they consider to be a defect in the treatment, in view of the fact that no present experience can be fully explained without reference to the past. I refer to these criticisms for the purpose of meeting them with the most explicit statement that in my view perception should be discussed without bringing in, as has been the custom, a mass of revived factors. I am prepared to undertake the defense of the position that percepts do not contain revived elements in any such fashion as appears in the conventional discussions.

A concrete illustration will make this antithesis perfectly clear. In reading the familiar words of every-day language, we are constantly recognizing that these words have a value and meaning for our mental lives which can be explained only by reference to the earlier contact which we have had with them. The earlier experiences which I have attached to such a word as "man," for example, give that word a value for my consciousness which is totally different from the value which it would have for the consciousness of a child who had not learned to read, or for the consciousness of a foreigner unacquainted with our language. But when the psychologist attempts to account for this present interpretation of the word "man" in my consciousness by saying that there is a train of revived elements brought forward from earlier experiences, he falls into confusion. The important fact is that here and now my consciousness is such as to give meaning and value to this word. Quite apart from the history of the matter there is a present situation to be understood and explained, and it mixes matters badly to talk about past experiences which are not now present when what is supposed to be under discussion is the present experience and its immediate characteristics.

Let us return to our concrete case and follow it through several stages of its development. When the individual who is learning to read is first brought into contact with the printed word "man," he is given at the same time the sensory impression of hearing which comes from the pronunciation of the word by his instructor. The auditory impression in this case is immediately used by the individual who is learning the word as a guide for his own articulation. He learns to react in such a way as to adjust himself to the auditory sensations which he receives from his instructor's voice and his own. Through the sound he thus comes to attach to the visual impression a form of reaction which would not have been suggested by the visual impression itself. As soon as the habit of articulation is once established, however, the sound impression loses its importance and may be dropped altogether from a description of the individual's experience with the printed word. The elements of the situation as they appear in the case of the developed reader are a visual impression followed by a reaction of articulation, and in some cases the articulation is reduced to the lowest possible terms. We have evidence in abundance that the reactions of articulation are of great importance in explaining the present perception of a word even when they are so reduced in intensity as to give rise to no sound whatsoever. It would, however, be very far from the truth to contend that the visual impression arouses first an auditory memory and then a process of articulation. The auditory factor has served its purpose and disappeared altogether, leaving behind its consequences, but no remnant of itself as a concrete factor in the situation.

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[1] The first paper of this series appeared in Vol. V., p. 676, of this JOURNAL.

Another illustration which may be carefully examined is that of continuous vision in the monocular field in spite of the blindspot. Here, as those writers tell us who insist upon a formal explanation of vision, certain factors of experience are actually added to the stock of present sensory elements, so that the field of vision is filled out by these added factors. Again I take the opportunity of emphasizing very clearly the antithesis between such a position with regard to vision in the blindspot and the position which I have attempted to defend. The effect for visual perception is, indeed, like that which would be secured by adding to consciousness certain sensory factors which are demonstrably not present. But this effect of continuous vision is no sound basis for the argument that the method of attaining the effect is the particular one assumed. The same effect may here, as in so many other cases, be produced by a variety of different methods, and it has been my purpose to call attention to a method which seems to me to find very much more in its support than that which has been commonly accepted. I should say that the interpretation of the visual field as continuous is not at all a matter of adding content factors, but rather a matter of the use to which the given content factors are put. In other words, without developing any elaborate machinery of added factors, we may explain continuous vision by saying that the sensory factors which are given are all that are necessary to call out in consciousness the complete interpretation. Continuity does not exist as a matter of sensation at all; one could add factors to all eternity and get no continuity. It exists rather as a general result of the constant habit of treating such factors of experience as are given in sensation in terms of a larger recognition of their value and effect upon active life. Every individual has learned by experience with the world that the field of vision presented to the single eye is continuous, and that it may be so treated. We never make any minute analysis of each particular field of vision, but we go forward in every case with the general mode of interpretation justified by experience. A closer examination of the phenomena themselves will show that this statement is defensible in all detail. Suppose an observer is looking at a field colored by some shade of color which he has never seen before. This is no radical assumption, for some of the minor shades of color certainly could be found which would be novel to any individual. Such a field of color viewed monocularly would undoubtedly be interpreted as continuous in spite of the fact that the observer had never before had this particular shade of color presented to him. We should then find ourselves obliged to say, if we insisted on finding factors with which to fill in the blank space, that the filling in of the blindspot consists in this case, not in the borrowing of elements from the past, but rather in the bringing over of elements from the surrounding parts of the field of vision to the blind area. In other words, the sensory factors which we should assume, since in this case there would be no legitimate appeal to past experience, must be borrowed from the present surrounding field. It thus appears that the formula of remembered sensory factors is altogether indefensible even in the cases sometimes used in support of such a formula. It is somewhat more difficult to give an equally pointed argument for the abandonment of the sensory formula altogether, but when once the formula of borrowed factors is weakened, it will easily give place to a formula of functional interpretation. Thus, it is much simpler to assume that the blindspot is wholly neglected and that the interpretations of continuity are based upon what is given, the blindspot being neglected, than to assume the more elaborate process which does not correspond to any observable fact. We do not know from direct observation that we fill in the blindspot. The burden of proof lies with him who asserts that we do.

The same may be said of a great variety of other cases. Take, for example, the familiar case of the person who overlooks a false letter in a misprint, or who recognizes without hesitation a word from which a letter has been omitted. The formula which has been adopted by many writers for such cases as these is that the absent letter is supplied out of earlier experience, or that the present visual image which is incorrect is entirely neglected and an element derived from past experience substituted for it. The fact is that there is no need of any such elaborate assumption. Indeed, it would be a very doubtful basis for general explanation of our recognition of a word to assume that a present visual image can be neglected in favor of a much fainter element drawn from past experience. The simpler treatment of such a case is to recognize a general fact that the visual perception of words does not deal in detail with each one of the letters. We recognize words, and even phrases, in a single glance, and many of the elements are so vague that they may be treated as entirely passed over in ordinary perception. To be sure, when we are learning to recognize a new word, the details are all of them subjects of careful examination. The details are at that time vividly presented and constitute a complex of factors, each element playing its part in the building up of the total complex. As the process becomes more and more familiar, many of these elements recede into the background of consciousness. We now select those characteristics of the word as a whole which are necessary for its recognition. These characteristics may be the general length of the word together with a few of its more conspicuous letter elements. These few salient characteristics are the sensory factors upon which we depend for our present recognition of the word. To assume that the details continue to be used in later life in the same vivid way in which they are used while we are learning the word, is to overlook one of the most essential changes in mental development. And yet this seems to be exactly what many theorists have done when they try to make us believe that each time we come in contact with a word we fill in all of the sensory elements that have ever been utilized at any time in building up the percept of this word.

The fact is that formalism without limit has come into our psychology with all these hypotheses about added memory elements and added sensory factors. One gets a notion from reading the ordinary text-book on psychology that a percept is a kind of rationally constructed argument with oneself in which one builds up a huge complex of factors into an elaborate mental process.

Pausing for the moment in our criticism of the usual doctrine of perception, let us call attention not merely to the weakness of the theory of "added factors," but to the dangers for the elementary student of introducing him to all this hypothetical constructive process. Suppose it is said that the doctrine of factors derived from past experience is at least picturesque and keeps the student alive to the history of each perceptional development. I should say that even this reference to the development of present percepts is untimely, for it fills the mind of the student with a formal kind of doctrine which makes him approach every mental process with a false atomistic notion of its probable composition. He gets the notion that one is at liberty to introduce into his accounts of experience any elements that seem to him necessary for an easy explanation of their present composition. A kind of imaginary description of what an experience might be in order to fit the theory is substituted in the student's mind for a rigid demand that the description of mental processes conform to careful observation.

This statement is borne out by the history of psychology, for the conventional treatment of mental life has been atomistic and formal. Elements have been emphasized rather than functions. Indeed, we find it difficult to introduce into our current discussions of mental processes anything except the most definite and formal concepts. Witness the fact that we have been listening of late to a discussion which has been confused because there seems to be no way of defining a common functional fact of mental life in anything but negative terms. We hear much about imageless ideas. Such phrases represent what is undoubtedly a perfectly legitimate reaction against the formalism of the earlier description. They indicate that in dealing with complex ideas there must be something besides the repetition of earlier sensory factors. And yet the writers who use such negatives find it extremely difficult, if not quite impossible, to explain the basis of these imageless ideas. Certainly there must be some sort of content in the mind when, for example, one makes a voluntary movement and is not conscious of any definite sensory picture as the basis of the movement itself. Appeal is sometimes taken to some such general formula as the "total situation" as the basis and motive of behavior. This phrase "total situation" certainly must include certain definite elements of experience which must be classified as sensory processes, or at least as recalled ideas. The mistake consists in the usual tendency to make sensory factors or ideational images the only possible phases of consciousness. The fact is that every experience is made up in part of phases which are totally different from those which can be described by the term image. The simplest perception of an object which is presented to the eyes contains a great deal more than the sensory elements of which it is composed. It consists of certain forms of arrangement and certain tendencies toward reaction which must be recognized by any student who would work out an adequate account of these processes. In the same way any idea contains very much more than the image which has usually been described in the discussion of memory processes. There may, indeed, be an image present, but it is usually the least significant part of a whole situation. It makes very little difference when I think of my friend whether I have a full image of his personal appearance, or even a vague outline; it is enough that the faintest image basis should be present for the elaborate processes of thought and action which the idea aroused in me. To call these processes of action and arrangement imageless is very far from the mark. They are, indeed, phases of consciousness which differ from sensory images or memory images. They are functional aspects of experience. As such they are not separable from content factors altogether, nor can their significance for mental life be understood without a recognition of their relation to the content factors of experience. To cut off, for example, the moment of mental activity which immediately precedes a voluntary action, and to say that this moment of consciousness is devoid of content factors because there is no image of the reacting organ, is to fail to recognize the fact that voluntary behavior is the final stage of a total process which includes at its outset some form of mental content. Following upon the first presentation of content there may have been a most elaborate process of readjustment and reaction. This elaborate process is not to be classified in terms which are appropriate only to its first stage. To say that any phase of the process is non-sensory seems to be an effort to set something in opposition to what is expected. The very use of the term would seem to indicate that there is a lingering desire on the part of the student to recognize sensory elements as the fundamental facts of experience. The whole situation could be much more adequately dealt with by recognizing from the outset that every situation is made up of phases which are sensory and others which are utterly indescribable in sensory terms. These latter should not even be called non-sensory since it is not in keeping with their nature to compare them with sensory elements.

Once the possibility of recognizing a wholly different type of explanation is admitted, the conscious process will be treated as a complex made up of sensory elements and other processes which are functional in character and deserving of a separate treatment. We shall then see that any particular phase of experience may be described either with reference to its sensory facts or with reference to its functional phases of activity. When accordingly the sensory elements are conspicuous in a mental process, we shall recognize the conspicuousness of these elements as an important characteristic of the whole process. When, on the other hand, the sensory processes are relatively less conspicuous, we shall treat it as a part of our psychological problem to explain why the sensory factors are thus insignificant. The balance between the two types of mental activity will thus come to be a problem in itself, and certainly one of the very greatest moment to explanatory science.

The formula which will be found to be useful in the adjustment of relations between sensory processes and other phases of consciousness is a formula based upon the recognition of bodily activities as important conditions of mental life. Whenever a sensation gives rise to a certain reaction, the importance of that sensation for the individual is determined not by its own quality and intensity, but rather by the relations into which it is brought through its tendency to arouse reaction. The reaction which a particular individual will tend to give to a sensory impulse is undoubtedly a matter of development. All of the instincts are important conditions of consciousness because they are the sources of reactive tendencies, and all of the acquired habits of the individual are significant for the same reason. Whether a given mode of reaction and its consequent effects upon conscious organization are due to instinctive organization or to some kind of personal experience which has resulted in a habit, the importance of the motor processes for the present percept is clear. The present percept is not made up of the past experience or the stages of development which produced the habit, the percept is a simple direct process of recognition just because of the present conditions which now exist. It is the immediate condition which interests us in explaining the nature of perception. If we are led off into a discussion of how the percept came to be what it is, we shall make the percept seem to be more complex than it really is.

Let us consider the definite case of space perception. Although such perception is a product of long individual development and adjustment, it is at the present moment conditioned by the fact that a given sensation arouses a definite reaction in its own direction. It would confuse the mind of a student to say of present space perception that it is made up of a large number of past experiences with different bodily adjustment. Whereas to say that the immediate localizing of a present sensation is the conscious result of a present motor tendency, is a direct and altogether valid formula. The source of such a motor tendency is often remote, as, for example, in the case of the eye. There can be no question that there is a reflex tendency born in every individual so to adjust the eye that images fall upon the fovea. Our space perception is in a very large measure conditioned by this reflex tendency, and in so far forth it is quite appropriate to say that our present space perception depends upon an innate tendency in the nervous organization. This innate tendency is in no sense of the word a sensory element, nor is it an idea or memory image of any kind whatsoever. Again there are certain personal experiences which have supplemented the innate reflex tendencies. Such personal experiences as grow out of the repeated contact with familiar objects in the environment have perfected our adjustment of the relation between visual impressions and the movements of our right and left hands and other active organs. These gradually accumulated personal experiences have been added to the innate tendencies of behavior in such a way as to build up a single system of reactions conditioning a single space in perception. It is quite impossible to see how a final scheme of spatial arrangement can include innate factors and also those derived from personal experience if it is not recognized from the outset that spatial arrangement is something other than a series of memory images. Spatial perception is the product of a system of reactions. Whatever the source in the past, the common outcome of all of these different influences is a definite mode of present arrangement of sensory factors in a spatial scheme dependent upon a present system of motor tendencies. To describe the nature of this present mode of adjustment in adequate terms is a psychological problem very much more urgent than to go into the elaborate discussion of the sources of this present mode of adjustment.

One final statement which can be made in support of the foregoing argument is that an overemphasis of ideational processes in the earlier psychology has vitiated in very large measure the whole treatment of perception. Perception has again and again been treated as if it were a process made up of elaborate forms of reasoning. To hold that the perceptual recognition of an object which stands before me is the result of anything like an elaborate form of reasoning is to grossly misunderstand the economy of mental life, for percepts are advantageous just because they are simple and direct. It is to do violence also to the fact now so fully recognized in psychology that ideas are relatively very late forms of mental action. The animals are supplied with all of the perceptual forms of consciousness though they have not developed ideas, or language, or any of the high types of abstraction. How can they be conceived to have developed their simple perceptual processes if the formula for these processes is to be worked out in terms of remembered factors? One interesting question that suggests itself in this connection is the question how animals become so highly adapted to spatial differences, as contrasted with man, who seems to acquire the spatial form much more slowly and very frequently less accurately. If space were always to be recognized as the product of ideas, we should have to assume in certain birds, for example, a very high type of mental development. What we can recognize, on the contrary, is that the perception of animals and the perception of man may issue in similar forms of mental adjustment in the end, but may reach these ends by wholly different routes. The animals show instinctive recognition of spatial relations as a result of organized racial reaction. Man has to work out many of his reactions individually. To demand a single formula for the two processes of development is to confuse the final stage of the evolution with its earlier stages.

These illustrations make clear the position which I hold regarding the nature and treatment of perception. Perception is a compact, immediate process dependent for its explanation upon present conditions here and now at hand. To depart from this formula tends to destroy clearness of thought and exposition.

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SOCIETIES

THE EIGHTH ANNUAL MEETING OF THE AMERICAN PHILOSOPHICAL ASSOCIATION

THE eighth annual meeting of the American Philosophical Association took place, in conjunction with the sixtieth annual meeting of the American Association for the Advancement of Science, in Baltimore, at the invitation of the Johns Hopkins University, on December 29, 30, and 31, 1908.

The official social functions were a reception by President Ira Remsen, of the Johns Hopkins University, to members of the association and affiliated societies in McCoy Hall on Monday evening, and the joint smoker of the American Philosophical Association, the American Psychological Association, and the Southern Society for Philosophy and Psychology at the Johns Hopkins Club on Wednesday evening.

Three presidential addresses were read before the associations. The Philosophical Association adjourned, as usual, to hear the address of the President of the Psychological Association, on Wednesday afternoon. Professor Stratton spoke on "The Betterment of Rival Types of Explication " in psychology, making a broad-minded appeal for an open-door policy. In the evening, the President of the Philosophical Association, Professor Münsterberg, addressed a large audience in the assembly room of the Baltimore City College, in his usual eloquent fashion, on "The Problem of Beauty." And at the close of the last session, on Thursday, the association listened to the President of the Southern Society for Philosophy and Psychology, Professor J. Macbride Sterett, who spoke on "The Proper Affiliation of Psychology—with Philosophy or with the Natural Sciences?"